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the nature and use of the photometer employed. In order, therefore, to remove any doubts as to the exact meaning and scientific character of the measures recorded in the paper, I may observe that the bases of the cones of light proceeding from the stars on to the eye-lenses of the photometers as measured by a dynamometer, in the case of the Grubb instrument, are fairly represented by one-thirtieth of an inch, and in the case of the Reflector (with either mirror) by one-twentieth of an inch: between them and the eye, close to these small luminous circles, the photometer wedges traverse; and furthermore, close to the wedge is placed the eye of the observer, guided and restricted in direction by a small diaphragm with about one-tenth of an inch circular opening. It is certain, therefore, that the whole of the light incident on the object-glass or mirror passes through the wedge and through the pupil to the retina.

I cannot, myself, conceive a more perfect or simple form of a photometer; and, as to the skill with which it is handled, the observations in the text, printed from the note-books of the two able observers, speak to the initiated for themselves.

Since writing the above, I have measured photometrically the ratio of the incidents to the transmitted light of the Grubb 13-in. object glass, and I find the result in very good accordance with that obtained by Dr. Robinson in 1869 for the same object glass by a totally different form of photometer. This and a few similar investigations I propose to make the subject of my next communication to the Society.

Note on a Comparison of the Photometric Magnitudes of the same Stars Observed at Harvard College and at the University Observatory, Oxford. By Prof. C. Pritchard, D.D., F.R.S.

The total number of stars of which the magnitudes have been photometrically measured, both at Harvard College and at Oxford, is up to the present time 1,801.

Of these the number of accordances within one quarter of a magnitude is 1,569; within the tenth of a magnitude the number of accordances is 717.

The number of discordances amounting to a quarter of a magnitude, and less than four-tenths, is 168 out of the 1,800.

The number of discordances amounting to four-tenths of a magnitude and beyond is 64.

Among the probable or possible causes of these discordances, comparatively inconsiderable as they are, may be reckoned:—

1. Errors of observation at one or both Observatories, as shown by the considerable residuals recorded in the Harvard memoir, and by the variable but smaller "average deviations" printed in the Oxford work.
2. The general application of the mean value of the atmospheric absorption on individual nights, whereas this

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absorption varies very greatly, and even unexpectedly, with the meteorological conditions of the time and place of the observations.

3. The occasional observations on nights not favourable to accurate measurement.
4. The variability of the lustre of the stars themselves.

It does not appear that either photometer, in its use or construction, is open to systematic error; and further, the effect of small differences of colour does not seem to affect the photometric determination. But there is observable a tendency in the Harvard observations to represent the zenithal magnitudes of stars, at a considerable distance from the zenith, as slightly brighter than the results derived at Oxford. This difference would, to some extent, be explained by supposing the co-efficient of atmospheric absorption, as used at Harvard, to be in excess of its actual amount. The coefficient 0·25 mag. is slightly larger than has been found at Continental observatories, but it is not here suggested that the Harvard value rests on a less secure basis than the others.

Oxford University Observatory:
1884, *Nov.* 13.

Observations of Stars Occulted by the Moon during the Eclipse of October 4, 1884, *at the University Observatory, Oxford.* Made under the direction of Prof. C. Pritchard, D.D., F.R.S.

Phase	Immersion.		Emersion.	
Instrument	Grubb Refractor.	De LaRue Reflector.	Grubb Refractor.	De LaRue Reflector.
Aperture ...	12¾ in.	13 in.	12½ in.	13 in.
Power ...	120.	150.	120.	150.
Observer ...	Plummer.	Jenkins.	Plummer.	Jenkins.
G.M.T.	h m s	h m s	h m s	h m s
63*			9 31 14·5	9 31 14·3
69			9 39 30·1	9 39 29·8
71			9 19 32·8	
74			9 50 9·0	9 50 8·3
76			9 32 19·0	9 32 19·1
81	9 32 22·7	9 32 23·2	10 36 59	
82	9 23 51·4		10 14 31·7	10 14 33·1†
85	9 23 55·1	9 23 52·3	10 30 52·2	10 30 50·8
94	10 6 34·7	10 6 33·8		
95	10 11 42·1	10 11 43·0		
96		10 39 26·6		
106	10 37 11·0	10 37 12·9		
107		10 37 26·8		
108	10 36 6·4	10 36 6·4‡		
109				

* Numbers as given in Dr. Döllen's list, *Ast. Nach.* No. 2615.

† Star faint. ‡ The immersion of the two stars was simultaneous.

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